

4 inch Diameter HPSI 4H SiC Substrate Specifications

Property	Unit	P	R	D
Diameter	mm	99.8~100.0		99.5~100.0
Thickness	μm	500±15		500±25
Surface Orientation		<0001>±0.2°		<0001>±0.5°
Resistivity(Minimum)	Ω·cm	≥1E10		≥1E8
Primary Flat Orientation		{10 10}±5.0°		{10 10}±5.0°
Primary Flat Length	mm	32.5±1.5		32.5±2.0
Secondary Flat Length	mm	18.0±1.5		18.0±2.0
LTV-Max	μm	≤2.5(10mm*10mm), ≤2(5mm*5mm)		≤5
TTV	μm	≤7		≤15
Bow	μm	0±15		0±30
Warp	μm	≤25		≤45
Surface Roughness	nm	C-face: polish Ra<1.0 Si-face: CMP Ra<0.3		C-face: polish Ra<1.0 Si-face: CMP Ra<0.3
Foreign Polytypes*		None	None, edge exclusion 3mm	None, edge exclusion 5mm
Polycrystal*		None	None, edge exclusion 3mm	None, edge exclusion 5mm
Hex Plates by High Intensity Light*		None	None, edge exclusion 3mm	None, edge exclusion 5mm
Micropipe Density	cm ⁻²	≤0.3	≤1	≤50
Pinholes	number	None	1 allowed	N/A
FWHM(0004)	arcsec	Maximum≤ 50	Maximum≤ 60	N/A
Cracks*	number	None	None, edge exclusion 3mm	None, edge exclusion 5mm
Edge Chips	number	None	2 allowed, <1.0mm width & depth	
Visible Scratch#	mm	None		
Microcosmic Scratch#	mm	Total length≤100	Total length≤100	Total length≤250
Surface Contamination		None		
*Defects limits apply to entire wafer surface except for the edge exclusion area.				
#The defects should be checked on Si face only.				
Product with other specifications can be customized.				